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THE MARKET BASKET

by
Bureau of Home Economics, U.S. Department of Agriculture

PROTEIN IS "THE STUFF OF LIFE"

EDITORS NOTE: This is the third in the series of monthly articles based on the 1939 Yearbook of Agriculture -- "Food and Life." This book gives a comprehensive review of the science of human and animal nutrition, brought up to date. This volume may be purchased from the Superintendent of Documents in Washington, D. C. for $1.50.

"If there were any one 'secret of life' protein might be considered to be at the heart of it, since protein is the essential stuff of which all living tissue is made," so says the Yearbook of Agriculture for 1939.

Protein is used for building tissue throughout the body. It makes up the chief part of the muscles, tissues, and organs on the inside — as well as the skin, hair, and nails on the outside.

Of course, no simple substance could perform so many different functions. So it is not surprising to find that protein is really a number of different substances. Each of these proteins is made up of simpler materials, called the amino acids. These amino acids are formed when the proteins of food are digested; and it is the amino acids that are actually used to build body tissues and fluids.

So far, 22 amino acids have been found to make up proteins. These amino acids may be compared to the letters of the alphabet. As the letters of the

alphabet combine to form words, these amino acids combine to form food proteins, and as the different words combine to form sentences, the proteins in turn combine to form living tissue.

A food is like a whole sentence. The words are taken apart in the digestive system and reduced to letters, or amino acids. The letters or amino acids are carried by the blood to all organs, all cells. Each cell or organ takes the particular letters it needs and rearranges them into new words or proteins, which make new sentences.

When the cells take these amino acids, they make them into new proteins to be used for a number of different purposes. Probably the chief function of the proteins is to build tissue. That is why there is a special demand for protein during childhood, when the body is growing. But both children and grown folks also need protein to repair old tissue, as it wears out.

However, proteins not only serve as the material for building and repairing tissues. They are also believed to play an important role in the formation of hormones and enzymes -- the mysterious substances that regulate many of the inside body functions, upon which life and health depend.

In addition to these functions, the body can also use proteins as a source of fuel to keep the body warm and to supply energy for work and play. But proteins are not burned completely in the body, so there are waste products left that must be eliminated. Another disadvantage is that proteins are expensive sources of energy -- when compared with sugars, starches, and fats.

So it seems best to use proteins chiefly to furnish amino acids for the building and repair of tissues, and the formation of the important hormones and enzymes.

Practically the whole alphabet of 22 amino acids is used to make the proteins that compose a human being. But the really high quality proteins are the "complete" proteins that contain all of the amino acids that the body must get from food.

Milk, cheese, eggs, meat, and fish supply generous amounts of complete proteins. For children, who need a good supply of protein, milk is considered the best source. Not only does milk contain complete proteins -- but it is also rich in carbohydrates, fats, and certain needed minerals and vitamins. The proteins of muscle meat do not rank as high as those of eggs or milk; but meat organs are rich in proteins of high nutritive value.

Nuts also contain proteins. But they are usually considered as sources of fat, rather than of protein.

Most of the cereals and legume seeds, such as peas and beans, do not contain all of the sesential amino acids to make them complete proteins. But the soybean offers an exception to this rule. When the soybean is heated, it becomes a complete protein, and has all the amino acids needed for the growth and repair of body tissue.

Fortunately, the amino acids that are lacking in one food may be fairly abundant in another. When two such "incomplete" proteins are eaten together, they form a mixture of complete protein. For example, cereals do not contain all of the essential amino acids. But milk has the kind of protein that is needed to supply what the cereal protein lacks. So if cereal is served with milk, it becomes a complete protein.

Cooking protein foods the right way is also important. Milk dishes, cheese dishes, meats, and eggs all need to be cooked at an even, moderate temperature. Slow cooking at a moderate heat is the best way to insure tender protein foods, and to make the finished dishes as appetizing as possible.

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COOKING WITH MILK AND CHEESE

Milk and cheese are among dairyland's contributions to good nutrition for American families. These two foods rank high in many of the important food values, and they are both useful in cooking.

Americans are using more milk and cheese than they did ten years ago. But a recent study made by the Federal Bureau of Home Economics shows that a further increase in the use of dairy products would do much to improve the nutritive quality of present day diets.

With every glass of whole milk--there's protein, fat, calcium, phosphorus, milk sugar, and some vitamins added to the diet. Whole milk contains vitamins A and G in important amounts, some vitamin B, and a little vitamin D. Cheese, made from whole milk, supplies most of these same food values in a more concentrated form. So the wise cook will plan meals to use generous amounts of both milk and cheese.

Since milk and cheese are protein foods, they fit right into the main part of the meal. And some especially good main dishes are made with both milk and cheese -- combined with either cereals or vegetables.

Probably the most familiar version of the cheese-and cereal combination is baked macaroni and cheese. But you can also use cheese to give a flavor contrast

to other bland cereals--such as spaghetti, rice, grits, and corn meal. Or make the cheese into a well-seasoned rabbit to serve on crisp toast or crackers. For a pleasing change, you may like to use tomatoes with the cheese in one of these dishes.

When cheese is combined with vegetables, it supplies protein to make the vegetables suitable as a main dish. Cheese goes especially well in scalloped potatoes, cabbage, corn, or a mixture of vegetables. And a tangy cheese sauce dresses up cooked broccoli, cauliflower, or asparagus.

The cheese most often used in cooking is the familiar golden-yellow kind, known as American or cheddar. Young American cheese is mild in flavor and soft in texture. As it ages, it takes on a sharp and tangy flavor, and it becomes dry and crumbly.

The kind of cheese you choose, depends on personal likes and dislikes. But, in general, the well-aged kind is more suitable for cooking purposes because it has more flavor.

Since cheese and milk are both protein foods, they need to be handled with care in cooking. Cheese is especially temperamental when heat strikes it.

The first caution in cooking cheese is to keep the temperature low. In fact, cheese should not really be "cooked," but merely heated enough to melt it. Overheating toughens the cheese and makes it stringy.

When the cheese is used in a baked dish, such as scalloped vegetables or macaroni and cheese, it is best to blend the cheese in the sauce before it is mixed with the other ingredients. Then it is not so likely to become stringy when heated But be sure to take the sauce off the fire first--to melt the cheese without overheating it.

When cheese sandwiches are toasted under a broiler flame, the bread "insulates" the cheese against too much heat. If the sandwich is the open-face variety, it is especially important to have a very low flame.

A second rule for making successful cheese dishes is to break the cheese into small pieces before you heat it. Cheese, broken into small bits, will spread more evenly among the other ingredients of the dish and it will cook in less time than when left in a big lump. Breaking the cheese in small pieces also prevents the formation of a solid curd when the fat melts out.

Grating is the easiest way to break up the cheese, if it is fairly dry. Otherwise, you can flake it with a fork, or shave it thin.

Either the grated, flaked, or shaved cheese can be used when the cheese is melted in a sauce. But when cheese is mixed in a batter or dough--as for muffins, bread, or biscuits--it must be grated first. These fine particles can be thoroughly mixed with the dry ingredients, so the cheese will not cling together and become stringy.

Cheese Toast is one of the unusual cheese dishes suggested by the Bureau of Home Economics. It makes an excellent lunch or supper dish when served with crisp bacon, a green salad, and some simple fruit dessert. It's a time-saver recipe, too, because the cheese mixture can be made the day before it's used.

CHEESE TOAST

1 pound cheese
1 cup rich milk or cream
2 tablespoons flour mixed with 2 tablespoons water
2 eggs
4 drops tabasco sauce, or a few grains of cayenne papper
A little onion juice, if desired
½ teaspoon salt
1½ teaspoons baking powder

Shave the cheese into thin small pieces. Heat the milk or cream in a double boiler, thicken with the flour which has been mixed with the water, and cook for 5 minutes. Add the beaten eggs, the cheese, and the seasonings, and cook slowly until the cheese has melted and the mixture is thick and creamy. Allow it to cool; then add the baking powder.

Toast one side of the bread. Spread the cheese mixture thickly on the untoasted side to the very edge. If the cheese mixture does not coma to the edges of the bread, they become brown and hard. Brown the cheese delicately under a low broiler flame or in the oven. If desired, place a strip of crisp bacon across each slice of cheese toast. Serve it hot from the oven. This recipe makes enough for 12 to 14 slices of bread.

The cheese mixture, except for the baking powder, may be prepared the day before it is to be used. Since the mixture stiffens on standing, heat until soft in a double boiler, let it cool, and add the baking powder. Then spread the cheese on the bread, and toast.

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THE MARKET BASKET
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CLEANING JOBS IN THE KITCHEN

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EDITORS PLEASE NOTE: So many requests on how to care for kitchen equipment come to the Bureau of Home Economics that we are departing from news on food itself, this week, and giving directions for cleaning. The material in this article is based on a new Farmers' Bulletin, No. 1834--"House Cleaning Management and Methods."

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In the kitchen one keep-clean is better than a dozen make-cleans. For it's really less trouble to establish order after every meal, than to spend a whole day scrubbing and scouring after a week of "letting things go."

But if you clean as you cook and have a regular schedule for the special cleaning jobs you can keep the kitchen bright and shining most of the time.

While vegetables are cooking or a cake is baking, take advantage of your spare minutes to put supplies back where they belong. Rinse mixing bowls, spoons, the egg beater, and all other pieces of equipment as soon as you are through with them. Clear your work shelf and table as you use them. Wipe the stove after every meal, and whenever food boils over. Keep the sink free from grease and dirt, and see that the refrigerator is sweet and clean all the time.

A handy shelf for cleaning supplies inspires kitchen-cleanliness. Stock the cleaning shelf with a mild neutral soap -- the same kind you use for washing fine

fabrics. You'll also want some scouring powder — a very fine kind, that doesn't scratch. A metal sponge or fine steel wool is also useful for cleaning stubborn spots. Steel wool in the "bulk" varies from the very fine (No. 00) to the very coarse; and it may, or may not, be specially treated to keep it from rusting. The packaged steel wool may be purchased with a cake of soap, or in pads mixed with soap.

Pots and pans need little more than the soap-and-water treatment. But to keep your aluminum utensils bright and your iron utensils spotless, rub them lightly with steel wool. Strong soaps and scouring powders that contain alkalis will discolor aluminum. So if your aluminum utensils become stained, boil a vinegar-and-water solution in them. Steel wool will take rust spots off iron utensils, and a light coating of mineral oil or other salt-free fat will keep them from rusting again.

Tin and enamel utensils need more gentle care. Soak food loose, rather than scrape it off with a knife. Or, you can heat the utensils for a few minutes in a weak soda solution. Then wash in soap-and-water. If the stain is very stubborn, rub it gently with a fine powder that is free from grit. A coarser powder will scratch the enamel finish, and will rub the tin finish off entirely.

The kitchen sink needs constant attention to spare the finish from a harsh scouring. If there are spots that will not respond to soap-and-water, rub them with a fine scouring powder. But never use a gritty powder or lye -- the powder will scratch the finish and lye will almost "eat" it off. Then the sink will be harder than ever to clean.

The chromium plating on modern plumbing fixtures needs only to be wiped frequently with a damp cloth, or washed with soap-and-water. But the older types of plumbing fixtures may occasionally be polished with a light rubbing of a fine scouring powder.

For the weekly cleaning of the refrigerator, use mild soap suds with a little soda added to help remove odors. First take out all the food. Then remove the shelves and refrigerator dishes and wash them, as well as the inside of the box. Finally rinse with clear water.

If yours is an ice refrigerator, pay special attention to the drain pipe. Remove the pipe and drain trap, then wash and scald them carefully to kill any bacteria.

If the stove is wiped regularly, the weekly cleaning should be quite simple. Take out all the removable parts and wash them in soap-and-water. If you have trouble with some of the grease and soot, use a little washing soda or trisodium phosphate in the water. As a last resort, rub with a grit-free scouring powder or with very fine steel wool.

Silver needs very special care because it is a soft metal. It will tarnish less quickly if you rinse it carefully and dry it with a clean towel. You can remove the tarnish by electrolysis, that is, by boiling the silver in a salt-and-soda solution in an aluminum vessel. Then finish by polishing with a piece of chamois or a soft cloth. However, this method can not be used for silver with dark indented portions that are part of the design. Some women prefer the brighter finish given by a good grade of silver polish. But be sure to use a polish that doesn't scratch, and put it on with a soft cloth or brush.

Floors, walls, and wood trim in the kitchen also need frequent cleaning. Plain soap-and-water is the most effective cleaning agent for these surfaces -- whether they're paint, varnish, lacquer, linoleum, or cork. Use light suds, and rub just hard enough to take off the dirt. Then rinse away every trace of soap with clear water, and wipe dry with a clean cloth. Wash only a small space at a

time and use water sparingly. Wash walls from the bottom up, to avoid streaks.

To make your walls easier to clean the next time, brush on a thin paste made of ordinary laundry starch. The next time, you can wash the dirt right off with the starch. Varnished and lacquered surfaces, as well as linoleum and cork, are easier to care for if they are given a thin coat of wax.

Additional suggestions for cleaning in the kitchen and in other parts of the house can be found in Farmers' Bulletin, No. 1834. This bulletin, called "House Cleaning Management and Methods," is available free as long as the supply lasts through the United States Department of Agriculture, Washington, D. C.

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IRON

EDITORS PLEASE NOTE: This is the fourth in the series of monthly articles based on the 1939 Yearbook of Agriculture—"Food and Life." This volume can be purchased from the Superintendent of Documents in Washington, D. C. The price is $1.50.

To swallow an iron nail would be the height of folly. But if the body could make use of that kind of iron, the nail would build up the store in the human body for a fraction of a cent. Instead, the body must get a daily supply of iron—and this can be accomplished through a wise selection of iron-rich foods.

The body needs iron to form hemoglobin—the coloring matter of the red blood cells. Thus, it helps to make the good red blood that we associate with rosy cheeks and a general look of good health.

Because iron is used to make hemoglobin, it helps to carry the oxygen needed by every living cell. It is this oxygen that keeps the fire of life burning in the body.

Normally, the body manufactures nearly a trillion red cells that circulate in the blood stream. When the body uses these red cells, they are broken down and destroyed. But about 85 percent of the iron in these cells is saved and re-used to build new blood cells. However, since the body must continually get some additional iron, the diet should contain a variety of foods that are

rich in the mineral.

Plenty of eggs, meat organs and other lean meats, green leafy vegetables, dried fruits, legumes, and whole-grain cereals are needed to add iron to the diet.

Egg yolks are very rich in iron, and during the spring months, eggs are especially abundant and low in price. This is also the time of the year to get wild and cultivated greens while they're young and tender. Beet greens, chard, dandelion, mustard greens, spinach, turnip greens, and water cress are excellent sources of iron. New green cabbage, collards, sorrel, broccoli, Brussels sprouts, and other green vegetables are also good.

Liver and other meat organs, such as kidney and heart, are richer in iron than muscle meats. Calf liver owes its present popularity to the fact that people recognize it as a valuable source of iron, and besides it has one or more substances that must go into the making of red blood cells. But pork, beef, and lamb liver are similarly rich in iron and they are lower in cost. Heart, kidney, and brains are also inexpensive sources.

Both the whole-grain cereals and the legumes, such as dried peas and shell beans, will furnish generous amounts of iron. Soybeans are particularly good. And dried fruits suggest a way to include iron any time, in the dish of breakfast prunes in the morning or in the dessert course for one of the other meals.

Normally, an infant is born with enough iron in its body to last for about six months. But when the mother is anemic or the baby is premature, the supply may not last that long. In any event, as the baby grows, there is a heavy demand on the supply of iron. And border-line nutritional anemia is fairly widespread among children from six months to two years of age. But this anemia can be prevented by adding egg yolk, ground calf liver, pureed green vegetables and dried fruits, and whole-grain cereals to the child's diet.

Nutritional anemia seldom occurs in children from five to 11 years of age, but girls between 11 and 14 sometimes develop a form of anemia, known as chlorosis. So it is important to give the adolescent girl plenty of iron-rich foods. It is also generally believed that women need more iron than men.

Recent studies have shown that copper must be present with the iron to form hemoglobin, although the copper does not become part of the hemoglobin. However, copper is usually found in the same foods that contain iron. So there is little danger of being low in copper, if the diet contains plenty of iron-rich foods.

Not so long ago, nutritionists also discovered that the body can make better use of the iron in some foods than in others. So they now speak of the amount of available iron--that is, the amount of iron that the body can use.

For example, the iron in egg yolk is 100 percent available. The iron in calf and lamb liver is also 100 percent available, and the iron in beef and pork liver is almost as high. The iron in whole grains is about 95 percent available; and that in prunes, peas, and orange juice is about 75. The availability of the iron in lean meats varies all the way from 10 to 55 percent.

The meal planner has a wide variety of foods to choose from as a source of iron. But it is well to know that the body can make better use of the iron in some foods than in others. And, in the interest of a well-rounded diet, it is important to get iron from a number of different foods.

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